

Qiankang (Kant) Wang

qkwang@berkeley.edu

kantwang.com github.com/wangkant

EDUCATION

University of California, Berkeley

Berkeley, CA

B.A. in Data Science

Expected May 2027

GPA: 3.82 / 4.00

Coursework: Machine Learning (CS 189), Probability (STAT 134), Principles and Techniques of Data Science (DATA 100), Computational Molecular and Cell Biology (BIOENG C131), Data Mining (DATA 144), Natural Language Processing (EECS 183).

RESEARCH INTERESTS

My research centers on machine learning models that learn biologically meaningful representations of molecular systems. I am particularly interested in how architectures and training objectives shape those representations, and in how interpreting them can generate testable hypotheses about biological mechanisms. My current work explores these questions in gene regulation.

RESEARCH EXPERIENCE

Kundaje Lab, Stanford University

Stanford, CA

Undergraduate Research Assistant

2026–Present

- Developed a framework for testing whether AlphaGenome and ChromBPNet learn the same regulatory features, comparing internal representations, base-level attributions (DeepLIFT/DeepSHAP), and motif instances (TF-MoDISco, FiNeMo) on K562 and GM12878 data, with *in silico* perturbation analysis as an orthogonal check.
- Found that the two models recover largely the same regulatory motifs, with only a handful of low-support motifs unique to either model.

Luo Lab, University of California, Irvine

Irvine, CA

Undergraduate Research Assistant

2024–2026

- Implemented conjugate gradient (CG) and biconjugate gradient (BiCG) solvers in AmberTorchPB, a LibTorch-based framework for Poisson-Boltzmann reaction field energy calculations on CPUs and GPUs.
- Benchmarked accuracy, runtime, and memory use across numerical precisions, showing that the CG solver reproduces AMBER PBSA energies ($R^2 = 1.00$) while running over 2× faster on CPU and nearly 2× faster on GPU [1].
- Built a Slurm-based scheduling pipeline that executed over one million PBSA energy calculations.

PUBLICATIONS

- [1] Wu, Y.; **Wang, Q.**; Jiang, R.; Luo, R. (2026). AmberTorchPB: A Unified Framework for Poisson-Boltzmann-Based Reaction Field Energy Calculation via Tensor Computation. *Journal of Chemical Theory and Computation*, 22(7), 3554–3570. doi:10.1021/acs.jctc.6c00085

HONORS AND AWARDS

Data Science Honors Program, University of California, Berkeley	2026–Present
Dean’s List, University of California, Berkeley	2025

SELECTED PROJECTS

Self-Supervised Contrastive Pretraining

SimCLR, PyTorch. github.com/wangkant/simclr-pytorch 2026

- Implemented SimCLR-style self-supervised learning with a ResNet-18 encoder and an alignment-and-uniformity objective in PyTorch. Pretrained on 100,000 unlabeled Tiny-ImageNet-200 images for 45 epochs, achieving 26.2% top-1 accuracy on the 200-class validation set using frozen encoder features and a cosine k -NN classifier ($k = 20$).

Self-Evolving LLM Agent

Python. github.com/wangkant/personagent 2026

- Developed a conversational LLM agent with scoped memory and context-aware decisions about when to respond. Built an asynchronous pipeline that records user feedback, requires corroborating evidence before applying behavioral updates, and supports audit trails and rollback; integrated messaging platforms through a shared gateway.

TECHNICAL SKILLS

Programming languages	Python, C++, Java, MATLAB, Bash, SQL
ML frameworks	PyTorch, LibTorch, TensorFlow, scikit-learn
ML methods	Transformers, convolutional networks, contrastive and self-supervised learning, diffusion models
Model interpretability	DeepLIFT, DeepSHAP, TF-MoDISco, FiNeMo, <i>in silico</i> perturbation analysis
Scientific computing	GPU optimization, iterative linear solvers, Poisson-Boltzmann and PBSA pipelines, molecular simulation workflows
Tools and systems	Linux, Git, Docker, CMake, Slurm, Jupyter, $\LaTeX$